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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/445,112	02/17/2000	HEINRICH JURGENSEN	P99.2405	9473

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EXAMINER
FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/445,112	JURGENSEN, HEINRICH	
	Examiner	Art Unit	
	Delma R. Flores Ruiz	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul Ip
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 17 – 23, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: Applicants fails to provide laser method for the recited functions, for example insufficient step for performing the method for reducing pump light or method step for operating the pump light reducing control.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wach et al (6,222,970) in view of Daikuzono (5,290,280)

Regarding claims 17, 20 – 23 and 28, Wach discloses a method for reducing pump light in a region of a laser light exit of a laser resonator fiber formed of a fiber core and which is surrounded by a pump fiber comprising an inner fiber portion which in turn is surrounded by a sheath, comprising the step: providing a last section of said pump fiber preceding said laser light exist so that at least a portion of the sheath, the manufacture of said last section only at least a part of said sheath is provided thereon, the step of providing said sheath such that a diameter thereof tapers in wedge-like fashion toward said light exit in a region of said laser section, the step of removing at least the portion of said sheath at said section by etching and a method for reducing pump light in a region of a laser light exit of a laser resonator fiber formed of a fiber core surrounded by a pump fiber comprising an inner fiber portion which in turn is surrounded by sheath, comprising the steps of; providing a last section of said pump fiber preceding and leading up to said laser light exit so that at least a reduced portion of the sheath is provided followed by a region having no sheath to reduce pump light emitted with the laser light at said laser light exit (see Figs. 23, 27B, 29, 55A-D, 59 and 84, Column 11, lines 11 – 58, Column 13, lines 43 – 59, Column 22, lines 40 – 60, Column 29, lines 49 – 65, Column 45, lines 19 – 83, Column 50, lines 44 – 55, Column 69, lines 39 – 43). It would have been obvious at the time of applicant's invention, to combine Daikuzono of teaching a is not provided to reduce pump light from being emitted with the laser light at said laser light exit and with method for reducing pump light because the forward end of single mode fiber at HR coating is reduced in diameter

by means of etching to reduce even further the amount of pump light that can coupled at into fiber cladding while also correspondingly increasing the amount reflection area a small amount which increases the amount of pump light that will be internally reflected back from a now larger reflecting surface, back into inner cladding. The exposed cores are surrounded by a clad -material serving as the laser light emitter in order to reduce power loss of the laser light . Also, since there is no space between the emitting face of the optical fiber and the impinging face of the emitter, a cooling fluid is not required to pass through. The laser light is emitted from the emitter to irradiate uniformly against the tissues, and if desired, against the tissues having a broad area. Further, a guide wire and a lead wire detecting a temperature can extend coaxially through the emitter. Therefore, a perforation of a normal part of the blood vessel can be prevented. To provide a more uniform power level distribution of the laser light, the optical fibers at the base portions are twisted. Operator safety also requires that pump light be reduced to safe levels. It is therefore desirable to severely attenuate the unwanted pump light while propagating the signal light with essentially no attenuation.

Regarding claim 18 and 19 Wach discloses the step of at least partially stripping said last section of said sheath and the sheath is entirely stripped away at said last section (see Figs. 23, 27B, 29, 55A-D, 59 and 84, Column 46, lines 55 – 56).

Regarding claim 24 – 27, Wach discloses a fiber laser comprising; a fiber core as a laser resonator surrounded by a pump fiber comprising an inner fiber portion which in turn is surrounded by an outer sheath; said fiber core having a laser light exit at an end thereof; and at last section of the fiber laser leading to a light exit for laser light said sheath being, the sheath at said last section said sheath tapers in wedge-like fashion toward said light exit, and the last section said sheath ir remove completely and an outer portion of said inner fiber portion is roughened where said sheath is completely removed leading to said laser light exit (see Figs. 23, 27B, 29, 55A-D, 59 and 84, Column 11, lines 11 – 58, Column 13, lines 43 – 59, Column 22, lines 40 – 60, Column 29, lines 49 – 65, Column 45, lines 19 – 83, Column 50, lines 44 – 55, Column 69, lines 39 – 43). It would have been obvious at the time of applicant's invention, to combine Daikuzono of teaching a is not provided to reduce pump light from being emitted with the laser light at said laser light exit and with method for reducing pump light because the forward end of single mode fiber at HR coating is reduced in diameter by means of etching to reduce even further the amount of pump light that can coupled at into fiber cladding while also correspondingly increasing the amount reflection area a small amount which increases the amount of pump light that will be internally reflected back from a now larger reflecting surface, back into inner cladding. The exposed cores are surrounded by a clad -material serving as the laser light emitter in order to reduce power loss of the laser light . Also, since there is no space between

the emitting face of the optical fiber and the impinging face of the emitter, a cooling fluid is not required

to pass through. The laser light is emitted from the emitter to irradiate uniformly against the tissues, and if desired, against the tissues having a broad area. Further, a guide wire and a lead wire detecting a temperature can extend coaxially through the emitter. Therefore, a perforation of a normal part of the blood vessel can be prevented. To provide a more uniform power level distribution of the laser light, the optical fibers at the base portions are twisted. Operator safety also requires that pump light be reduced to safe levels. It is therefore desirable to severely attenuate the unwanted pump light while propagating the signal light with essentially no attenuation.

Response to Arguments

Applicant's arguments field on 1/28/2003 have been fully considered but they are not persuasive. See rejection of claims 17 – 28 above.

Applicant argues that Wach is completely irrelevant to the claimed invention at least for the following reason. There is not even a single hint anywhere in Wach to provide pump fiber surrounding a laser resonator in the manner recited in the claims. Wach is simply not directed to a fiber laser pump fiber surrounding a fiber laser resonator, does not even mention reducing pump light at the exit of the laser resonator,

and does not even hint at not providing a portion of the sheath to reduce pump light interference. The examiner maintains that rejection above is proper since the examiner

could give the broadest interpretation possible to the claims and therefore, the rejection as stated above is maintain. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.

Delma R. Flores Ruiz
Examiner
Art Unit 2828
DRFR/PI
May 2, 2003

Paul Ip
Supervisor Patent Examiner
Art Unit 2828